

a single-stage analog multiplier having a first input terminal, a second input terminal and an output terminal for producing an output equal to the product of the signals appearing at said first input terminal and said second input terminal;

a first ac signal applied to said first input terminal;

an ac short-circuit at the output terminal, and

a second ac signal at quadrature with said first ac signal outputted from said second input terminal.

Claim 3. (currently amended) The quadrature frequency generator as described in claim 2, wherein said [in-phase] first ac signal is an in-phase voltage, and said [quadrature] second ac signal is a quadrature voltage.

Claim 4.(currently amended) The quadrature frequency generator as described in claim 3, wherein said single-stage analog multiplier is a differential multiplier, having:

a differential pair fed from a current source, which is controlled by said in-phase voltage,

said output terminal is [derived from] the differential output of the differential pair; and

said second ac voltage is [derived] outputted from the differential input of the differential pair.

Claim 5.(original) The quadrature frequency generator as described in claim 4, wherein said differential input is single-ended.

Claim 6. (original) The quadrature frequency generator as described in claim 4, wherein a capacitor is connected between said differential output to ac short-circuit said differential output.

Claim 7. (original) The quadrature frequency generator as described in claim 4, wherein said differential output is short-circuited to a supply voltage at ac ground.

Claim 8. (original) The quadrature frequency generator as described in claim 4, wherein the transconductance of said current source is equal to one half of the transconductance of one of the differential pair, so that the amplitude of the quadrature ac voltage is equalized to the in-phase voltage.

Claim 9. (original) The quadrature frequency generator as described in claim 4, wherein said output is single-ended.

Claim 10. (original) The quadrature frequency generator as described in claim 9, wherein a capacitor is connected between said single-ended output and ac ground.

Claim 11. (original) The quadrature frequency generator as described in claim 10, wherein said single-ended output is connected to a biasing power supply.